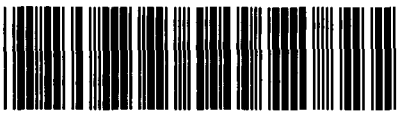

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APPLICATION OF SOUTHWESTERN ELECTRIC POWER COMPANY FOR CERTIFICATE OF CONVENIENCE AND NECESSITY AUTHORIZATION AND RELATED RELIEF FOR THE ACQUISITION OF WIND GENERATION FACILITIES	§	BEFORE THE STATE OFFICE OF ADMINISTRATIVE HEARINGS

SOUTHWESTERN ELECTRIC POWER COMPANY'S RESPONSE TO GOLDEN SPREAD ELECTRIC COOPERATIVE INC.'S FIRST REQUEST FOR INFORMATION

OCTOBER 14, 2019

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SOUTHWESTERN ELECTRIC POWER COMPANY'S RESPONSE TO GOLDEN SPREAD ELECTRIC COOPERATIVE INC.'S FIRST REQUEST FOR INFORMATION

Question No. GSEC 1-1:

Please refer to page 7 of the direct testimony of Johannes P. Pfeifenberger, that states "The Company relied on the PROMOD 'Reference Case (Future 1)' that SPP staff and stakeholders developed for the 2019 ITP."

a. How much wind capacity is included in the referenced Future 1 2019 ITP PROMOD Model for 2024? For 2029?

b. How much wind capacity is included in the Future 2 of the same 2019 ITP PROMOD Model for 2024? For 2029?

Response No. GSEC 1-1:

a. As discussed in witness Pfeifenberger's testimony, SPP's Future 1 2019 ITP PROMOD model assumes 24.2 GW of wind capacity in 2024 and 24.6 GW in 2029. As also explained in witness Pfeifenberger's testimony, the Company added to these amounts the proposed or selected wind facilities that were not already included in SPP's PROMOD cases.

b. SPP's Future 2 2019 ITP PROMOD model assumes 27 GW of wind capacity in 2024 and 30 GW in 2029.

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Sponsored By: Kamran Ali — Title: Mng Dir Trans Planning
Sponsored by: Johannes P. Pfeifenberger — Title: Principal, The Brattle Group

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SOUTHWESTERN ELECTRIC POWER COMPANY'S RESPONSE TO GOLDEN SPREAD ELECTRIC COOPERATIVE INC.'S FIRST REQUEST FOR INFORMATION

Question No. GSEC 1-2:

How much wind capacity is included in the Future 1 2020 ITP PROMOD Model for 2025? For 2030?

Response No. GSEC 1-2:

SPP's Future 1 2020 ITP PROMOD model now assumes 26 GW of wind capacity in 2025 and 28 GW in 2030. These assumptions are summarized on page 4 of SPP's 2020 ITP Assessment Scope, accessible here:

https://www.spp.org/Documents/59384/2020%20ITP%20scope_MOPC%20Approved.docx

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SOUTHWESTERN ELECTRIC POWER COMPANY'S RESPONSE TO GOLDEN SPREAD ELECTRIC COOPERATIVE INC.'S FIRST REQUEST FOR INFORMATION

Question No. GSEC 1-3:

How much wind capacity is included in the Future 2 2020 ITP PROMOD Model for 2025? For 2030?

Response No. GSEC 1-3:

SPP's Future 2 2020 ITP PROMOD model now assumes 30 GW of wind capacity in 2025 and 33 GW in 2030. Please see SPP's 2020 ITP Assessment Scope document referenced in the Company's responses to GSEC 1-2.

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SOUTHWESTERN ELECTRIC POWER COMPANY'S RESPONSE TO GOLDEN SPREAD ELECTRIC COOPERATIVE INC.'S FIRST REQUEST FOR INFORMATION

Question No. GSEC 1-4:

How much wind capacity is included in the Future 1 2021 ITP PROMOD Model for 2026? For 2031?

Response No. GSEC 1-4:

SPP's 2021 ITP Study scope has not yet been finalized nor has it been approved by the SPP's Markets and Operations Committee (MOPC).

Prepared By: Anita A. Sharma Title: Engineer Staff

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SOUTHWESTERN ELECTRIC POWER COMPANY'S RESPONSE TO GOLDEN SPREAD ELECTRIC COOPERATIVE INC.'S FIRST REQUEST FOR INFORMATION

Question No. GSEC 1-5:

How much wind capacity is included in the Future 2 2021 ITP PROMOD Model for 2026? For 2031?

Response No. GSEC 1-5:

See response to 1-4.

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SOUTHWESTERN ELECTRIC POWER COMPANY'S RESPONSE TO GOLDEN SPREAD ELECTRIC COOPERATIVE INC.'S FIRST REQUEST FOR INFORMATION

Question No. GSEC 1-6:

Please provide a list every economic ITP Future 1 model that has been completed by SPP in the last 10 years.

a. For each of the models listed, please provide a description of Future 1 .

b. For each of the Future 1 models listed, please provide the corresponding amount of wind generation capacity predicted by year.

c. Please list every economic ITP Future model other than Future 1 that has been completed by SPP in the last 10 years.

d. For each of the additional models listed, please list the corresponding amount of wind generation capacity in each additional Future model predicted by year.

e. For each of the additional models listed, please provide a description of each model/"Future."

Response No. GSEC 1-6:

SPP ITP Study efforts include three types of ITP studies: (1) the Integrated Transmission Planning 20-Year Assessment Report ("ITP20"), (2) the Integrated Transmission Planning 10-Year Assessment Report ("ITP10"), and (3) the Integrated Transmission Planning Near Term Assessment Report ("ITPNT"). The following ITP Study reports have been completed in the last 10 years and can be accessed publicly on SPP's website using the weblinks provided:

•2010 SPP ITP20, accessible here:
https://www.spp.org/documents/13829/itp20%20report%20draft.pdf

•2012 SPP ITP10, accessible here:

•https://www.spp.org/documents/16691/20120131%202012%20itp10%20report.pdf

•2012 SPP ITPNT, accessible here:
https://www.spp.org/documents/16543/2012%20itpnt%20report_board%20approved.pdf

•2013 SPP ITP20, accessible here:
https://www.spp.org/documents/20438/20130730_2013_itp20_report_clean.pdf

•2013 SPP ITPNT, accessible here:
https://www.spp.org/Documents/17901/2013%20ITPNT%20Report.pdf

•2014 SPP ITPNT, accessible here:
https://www.spp.org/Documents/21343/Draft%202014%20ITPNT%20Report.doc

•2015 SPP ITP10, accessible here:
https://www.spp.org/documents/26141/final_2015_itp10_report_bod_approved_012715.pdf

•2015 SPP ITPNT, accessible here:
https://www.spp.org/documents/30445/final_2015_itpnt_assessment_bod_approved.pdf

•2016 SPP ITPNT, accessible here:
https://www.spp.org/documents/42676/final%202016%20itp%20near-term%20assessment%20spp%20board%20approved.pdf

•2017 SPP ITP10, accessible here:
https://www.spp.org/documents/51179/2017_itp10_report_board%20approved_april2017_final.pdf

•2017 SPP ITPNT, accessible here: https://www.spp.org/documents/51177/2017_itp_near-term_assessment_final_report_board.pdf

•2018 SPP ITPNT, accessible here: https://www.spp.org/documents/58359/2018_itpnt_report.pdf

•2019 SPP ITP10, accessible here:
https://www.spp.org/Documents/60710/2019%20ITP%20Report_v0.3.zip

a. Please note that SPP's "Future 1" designation is not consistent across ITP reports. For descriptions of all futures scenarios developed in each SPP's ITP Studies, see:

- Section 7.1 of the 2010 SPP ITP20 Report
- Section 4.2 of the 2012 SPP ITP10 Report
- Section 3.2 of the 2013 SPP ITP20 Report
- Section 3.2. of the 2015 SPP ITP10 Report
- Section 2.1 of the 2017 SPP ITP10 Report
- Section 2.2.1.1. of the 2019 SPP ITP10 Report

Note that the ITPNT reports are near term assessments and do not develop futures scenarios.

b. Future generation mix assumptions are described in:
- Section 7.6 of the 2010 SPP ITP20 Report
- Section 4.3 of the 2012 SPP ITP10 Report
- Section 5 of the 2013 SPP ITP20 Report
- Section 19.1 of the 2015 SPP ITP10 Report
- Section 4 of the 2017 SPP ITP10 Report
- Section 2.2 of the 2019 SPP ITP10 Report

c. Other ITP Future Models other than Future 1 completed by SPP in the last 10 years:
- Future 2, 3, and 4 as described in Section 7.1 of the 2010 SPP ITP10 Report
- Future 2 as described in Section 4.2 of the 2012 SPP ITP10 Report

- Future 2, 3 and 4 as described in Section 3.2 of the 2013 SPP ITP10 Report
- Future 2 as described in Section 3.2 of the 2015 SPP ITP10 Report
- Future 2 and Future 3 as described in Section 2.1 of the 2017 SPP ITP10 Report
- Future 2 as described in Section 2.2.1.1 of the 2019 SPP ITP10 Report

d. Please see the response to part b.

e. Please see the response to part c.

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Sponsored by: Johannes P. Pfeifenberger — Title: Principal, The Brattle Group

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SOUTHWESTERN ELECTRIC POWER COMPANY'S RESPONSE TO GOLDEN SPREAD ELECTRIC COOPERATIVE INC.'S FIRST REQUEST FOR INFORMATION

Question No. GSEC 1-7:

Please provide the actual amount of wind generation capacity in SPP in each year starting in 2011 and ending with the current amount of wind generation capacity.

Response No. GSEC 1-7:

Page 24 of SPP's 2018 Annual Report reports the following amounts of installed wind capacity in SPP between 2011 and 2018:

- 2011: ~5,000 MW
- 2012: 7,790 MW
- 2013: 8,405 MW
- 2014: 8,583 MW
- 2015: 12,397 MW
- 2016: 16,114 MW
- 2017: 17,596 MW
- 2018: 20,589 MW

The 2018 Annual Report is accessible here: https://www.spp.org/spp-documents-filings/?id=18274

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SOUTHWESTERN ELECTRIC POWER COMPANY'S RESPONSE TO GOLDEN SPREAD ELECTRIC COOPERATIVE INC.'S FIRST REQUEST FOR INFORMATION

Question No. GSEC 1-8:

Please refer to page 18 of the direct testimony of Johannes P. Pfeifenberger. With the referenced addition of 4,400 MW of RFP bids to SPP's Reference Case, how much wind capacity was used in the 2024 and 2029 Bid Evaluation Case models?

Response No. GSEC 1-8:

As noted in witness Pfeifenberger's testimony, including the 4,400 MW of RFP bid, the RFP Bid Evaluation model has 28,600 MW of wind capacity available for dispatch in 2024, and 29,000 MW of wind capacity available for dispatch in 2029.

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SOUTHWESTERN ELECTRIC POWER COMPANY'S RESPONSE TO GOLDEN SPREAD ELECTRIC COOPERATIVE INC.'S FIRST REQUEST FOR INFORMATION

Question No. GSEC 1-9:

How much wind capacity was used in the 2024 and 2029 "Base Case" and "No- SPP-Upgrades Case" model?

Response No. GSEC 1-9:

The "Base Case" and "No-SPP Upgrades Case" both assumed total installed wind generation that exceeds the 2024 and 2029 SPP Reference Case wind assumptions by 1,000 MW to account for the Selected Wind Facilities not in the SPP Reference Case.

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SOUTHWESTERN ELECTRIC POWER COMPANY'S RESPONSE TO GOLDEN SPREAD ELECTRIC COOPERATIVE INC.'S FIRST REQUEST FOR INFORMATION

Question No. GSEC 1-10:

If the amount of wind generation capacity utilized differs between the "Bid Evaluation Case," "Base Case," and "No-SPP-Upgrades Case," please explain why they differ from one another.

Response No. GSEC 1-10:

Please see the discussion in Section VI, pages 29-30 of witness Pfeifenberger's testimony.

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Prepared by: Akarsh Sheilendranath	Title: Senior Associate, The Brattle Group
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SOUTHWESTERN ELECTRIC POWER COMPANY'S RESPONSE TO GOLDEN SPREAD ELECTRIC COOPERATIVE INC.'S FIRST REQUEST FOR INFORMATION

Question No. GSEC 1-11:

How much wind generation capacity does AEP expect to be in the SPP footprint in each of the following years: 2024, 2025, 2026, 2029 , 2030 , and 2031?

Response No. GSEC 1-11:

AEP does not develop a forecast of wind generation interconnection for the SPP Region.
As explained in the testimony of Company witness Pfeifenberger, AEP used economic models developed by SPP for its Integrated Transmission Planning (ITP) Studies which reflect projected wind generation capacity forecasts developed and approved by its stakeholders.

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SOUTHWESTERN ELECTRIC POWER COMPANY'S RESPONSE TO GOLDEN SPREAD ELECTRIC COOPERATIVE INC.'S FIRST REQUEST FOR INFORMATION

Question No. GSEC 1-12:

Please explain the methodology AEP utilized to determine that the Selected Wind Facilities would provide a 15% capacity benefit.

Response No. GSEC 1-12:

See the response to CARD 3-17.

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Prepared By: James F. Martin	Title: Regulatory Case Mgr
Sponsored By: John F. Torpey	Title: Mng Dir Res Plnning&Op Anlysis

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SOUTHWESTERN ELECTRIC POWER COMPANY'S RESPONSE TO GOLDEN SPREAD ELECTRIC COOPERATIVE INC.'S FIRST REQUEST FOR INFORMATION

Question No. GSEC 1-13:

Please describe SPP's current methodology for accrediting wind capacity.

Response No. GSEC 1-13:

SPP's method can be found on the SPP website by following this link: https://www.spp.org/spp-documents-filings/?id=188162

See the Company's response to CARD 3-17 regarding changes to SPP's accredited capacity.

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Prepared By: James F. Martin — Title: Regulatory Case Mgr

Sponsored By: John F. Torpey — Title: Mng Dir Res Plnning&Op Anlysis

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SOUTHWESTERN ELECTRIC POWER COMPANY'S RESPONSE TO GOLDEN SPREAD ELECTRIC COOPERATIVE INC.'S FIRST REQUEST FOR INFORMATION

Question No. GSEC 1-14:

Admit or Deny. SPP's current methodology for accrediting wind capacity would allow an SPP Load Responsible Entity to have 100% of their accredited capacity come from wind.

Response No. GSEC 1-14:

Deny. Allowing an SPP Load Responsible Entity to have 100% of their accredited capacity come from wind is not possible as a practical matter. Theoretically, a member could satisfy their capacity obligations using wind resources. Among other things, such an approach would require them to secure firm transmission service well in excess of their loads and, likely, at significant expense. SPP is also evaluating changes to its capacity accreditation policy for wind resources which would make such an approach even more impractical.

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Sponsored By: John F. Torpey	Title: Mng Dir Res Plnning&Op Anlysis

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SOUTHWESTERN ELECTRIC POWER COMPANY'S RESPONSE TO GOLDEN SPREAD ELECTRIC COOPERATIVE INC.'S FIRST REQUEST FOR INFORMATION

Question No. GSEC 1-15:

Admit or Deny. SPP can sustain resource adequacy indefinitely with only wind generation resources. Please explain your response.

Response No. GSEC 1-15:

Deny. SWEPCO does not believe it is possible for SPP to sustain resource adequacy using only wind generation resources. See the Company's response to GSEC 1-14.

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Prepared by: Akarsh Sheilendranath	Title: Senior Associate, The Brattle Group
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Sponsored by: Johannes P. Pfeifenberger	Title: Principal, The Brattle Group

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SOUTHWESTERN ELECTRIC POWER COMPANY'S RESPONSE TO GOLDEN SPREAD ELECTRIC COOPERATIVE INC.'S FIRST REQUEST FOR INFORMATION

Question No. GSEC 1-16:

Admit or Deny. SPP is in the process of changing the capacity accreditation methodology of wind. If admit,

a. Please describe the methodology SPP is considering adopting.
b. Please provide the method of calculating and the current capacity rating, by resource, for each of SWEPCO's current wind resources referred to on page 19 of the direct testimony of John F. Torpey.
c. Please provide an estimation of the capacity rating AEP expects, by resource, for each of SWEPCO's current wind resources, for each of the following years: 2024, 2025, 2026, 2029, 2030, and 2031 utilizing the current SPP method.
d. Please provide an estimation of the capacity rating AEP expects, by resource, for each of SWEPCO's current wind resources, for each of the following years: 2024, 2025, 2026, 2029, 2030, and 2031 utilizing the proposed SPP method.
e. Which of SWEPCO's current wind resources have firm transmission service?

Response No. GSEC 1-16:

Admit.

a. See the Company's response to CARD 3-17 and CARD 3-17 Attachment 1 for the SPP's description of the ELCC methodology. The Company applied that methodology, assuming these projects would be Tier 2 resources in estimating the 15.3% capacity credit in this proceeding.
b. See the response to GSEC 1-13 for SPP's current methodology.
c. See GSEC_1-16 Attachment_1 for an estimation of the capacity rating AEP expects, by resource, for each of SWEPCO's current wind resources through the contract termination dates utilizing the current SPP method.
d. These existing facilities have firm transmission service, and therefore the Company expects they will be accredited with the Tier 1 22.6% of nameplate, per the SPP ELCC methodology provided in the Company's response to CARD 3-17. See GSEC 1-16 Attachment 2 for the expected capacity accreditations through the contract termination dates.
e. Majestic, High Majestic II, Flat Ridge 2, Canadian Hills

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SWEPCO SPP Capacity Credit Summary

Facility Name	Contract Termination Date	Nameplate Rating (MW)	Capacity Credit Rating (MW)
Majestic	1/31/2029	79.5	13.0
High Majestic II	12/31/2032	79.6	21.0
Flat Ridge 2, 1	12/31/2032	31.0	3.1
Flat Ridge 2, 2	12/31/2032	77.8	7.8
Canadian Hills, 1	12/21/2032	52.8	10.4
Canadian Hills, 2	11/20/2032	48.0	9.0
Canadian Hills, 4	11/29/2032	100.5	15.4

SWEPCO SPP Capacity Credit Summary

Facility Name	Contract Termination Date	Nameplate Rating (MW)	Capacity Credit Rating (MW)
Majestic	1/31/2029	79.5	18.0
High Majestic II	12/31/2032	79.6	18.0
Flat Ridge 2, 1	12/31/2032	31.0	7.0
Flat Ridge 2, 2	12/31/2032	77.8	17.6
Canadian Hills, 1	12/21/2032	52 8	11.9
Canadian Hills, 2	11/20/2032	48.0	10.8
Canadian Hills, 4	11/29/2032	100.5	22.7

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SOUTHWESTERN ELECTRIC POWER COMPANY'S RESPONSE TO GOLDEN SPREAD ELECTRIC COOPERATIVE INC.'S FIRST REQUEST FOR INFORMATION

Question No. GSEC 1-17:

Admit or Deny. In the SPP stakeholder processes, AEP has voted to approve the use of Effective Load Carrying Capability as the guiding principle for the accreditation of solar, wind and storage resources in the SPP Balancing Authority, replacing the current accreditation methodology found in section 7.1.5.3 (7) of the SPP Planning Criteria once new criteria language is approved.

Response No. GSEC 1-17:

SWEPCO has voted to approve using ELCC for the wind and solar accreditation. SWEPCO has not voted to approve using ELCC for storage or hybrid Solar/storage. The SPP is performing some analysis on this, but the Supply Adequacy Working Group (SAWG) has not yet approved anything related to storage.

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SOUTHWESTERN ELECTRIC POWER COMPANY'S RESPONSE TO GOLDEN SPREAD ELECTRIC COOPERATIVE INC.'S FIRST REQUEST FOR INFORMATION

Question No. GSEC 1-18:

Does AEP expect to obtain firm transmission service for the Selected Wind Facilities?
a. If so, how much does AEP expect to pay for firm transmission service and when does it anticipate paying these amounts?
b. Will SWEPCO be responsible for paying all costs associated with firm transmission service for the Selected Wind Facilities?

- If not, please describe how the difference between what SWEPCO pays and the cost will be funded, including which companies will fund the difference.
- Will other Texas rate payers other than SWEPCO incur part of the cost of the firm transmission for the Selected Wind Facilities?

Response No. GSEC 1-18:

- SWEPCO has not requested firm transmission service for the Selected Wind Facilities.
- SWEPCO anticipates, at some point, it may request firm transmission service under the SPP Tariff. This process and the resulting cost allocation, if any, will be determined under terms of the publicly available FERC approved SPP Tariff.

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SOUTHWESTERN ELECTRIC POWER COMPANY'S RESPONSE TO GOLDEN SPREAD ELECTRIC COOPERATIVE INC.'S FIRST REQUEST FOR INFORMATION

Question No. GSEC 1-19:

Did AEP or Invenergy request Network Resource Interconnection Service ("NRIS") from SPP?

a. If so, please provide the cost of NRIS and cost difference between Energy Resource Interconnection Service ("ERIS") and NRIS for each wind resource.
b. If not, please explain why NRIS was not requested.
c. Admit or Deny: ERIS is generally considered an "energy-only" interconnection service available up to the output consistent with congestion pricing, and NRIS interconnection integrates generators with the transmission system to serve native load customers as network resources. Please explain your answer.
d. Admit or Deny: The Selected Wind Facilities are intended to be "energy-only" resources not intended to serve load. Please explain your answer.

Response No. GSEC 1-19:

No, NRIS was not requested from SPP.

a. N/A
b. ERIS was chosen to reduce potential network upgrades that may be triggered under a NRIS scenario.
c. ERIS and NRIS are explained in SPP's Generation Interconnection Procedure available at the following web address http://opsportal.spp.org/documents/studies/SPP%20Tariff%20Attachment%20V%20Generator%20Interconnection%20Procedures.pdf
d. The Selected Wind Facilities will be utilized to provide benefits to SWEPCO's load and the benefits are due to production cost savings, capacity value and production tax credits that these facilities are entitled to as also explained on page 15 through page 17 of witness Torpey's testimony.

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SOUTHWESTERN ELECTRIC POWER COMPANY'S RESPONSE TO GOLDEN SPREAD ELECTRIC COOPERATIVE INC.'S FIRST REQUEST FOR INFORMATION

Question No. GSEC 1-20:

Will AEP consider obtaining NRIS service for the Selected Wind Facilities? Please explain.

Response No. GSEC 1-20:

It is unlikely the company will request NRIS. Based on the process that currently exists, the potential additional investment associated with NRIS does not provide much, if any incremental benefit as compared to ERIS. Upon interconnection, both ERIS and NRIS resources have access to the SPP Integrated market place although neither ERIS nor NRIS guarantee firm transmission service for the total energy output.

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SOUTHWESTERN ELECTRIC POWER COMPANY'S RESPONSE TO GOLDEN SPREAD ELECTRIC COOPERATIVE INC.'S FIRST REQUEST FOR INFORMATION

Question No. GSEC 1-21:

Do upgrades built to acquire NRIS service decrease congestion?

Response No. GSEC 1-21:

Transmission upgrades that may be required for acquiring NRIS service may not decrease congestion between wind generation facilities and the AEP-West load zone. Impact on congestion associated with delivery of output of wind generation resources to AEP loads will depend on a number of factors, such as the location and type of NRIS-related upgrades (if any), as well as future generation development in the electrical vicinity of the wind generation facilities. Any impact on congestion is project-specific and varies with time. In some cases, new generation development facilitated by NRIS upgrades may actually exacerbate congestion cost associated with the existing facilities even with NRIS upgrades. This also applies to any upgrades that may be required to acquire NRIS service for the Selected Wind Facilities.

Note that without the completion of an NRIS study, it cannot be known whether transmission upgrades will be necessary. Even if the NRIS study finds that upgrades are necessary, nothing can be affirmatively said about the impact of such upgrades on congestion costs without additional congestion analyses.

Prepared By: James W. Jacoby	Title: RTO Regulatory SPP Mgr
Prepared By: Charles R. Ross	Title: Mng Dir RTO Policy & FERC Rec
Prepared by: Akarsh Sheilendranath	Title: Senior Associate, The Brattle Group
Sponsored by: Johannes P. Pfeifenberger	Title: Principal, The Brattle Group

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PUC DOCKET NO. 49737

SOUTHWESTERN ELECTRIC POWER COMPANY'S RESPONSE TO GOLDEN SPREAD ELECTRIC COOPERATIVE INC.'S FIRST REQUEST FOR INFORMATION

Question No. GSEC 1-22:

Would NRIS service for the Selected Wind Facilities mitigate the congestion risk for the Selected Wind Facilities?

Response No. GSEC 1-22:

See the Company's response to GSEC 1-21.

Prepared By: James W. Jacoby	Title: RTO Regulatory SPP Mgr
Prepared By: Charles R. Ross	Title: Mng Dir RTO Policy & FERC Rec
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SOUTHWESTERN ELECTRIC POWER COMPANY'S RESPONSE TO GOLDEN SPREAD ELECTRIC COOPERATIVE INC.'S FIRST REQUEST FOR INFORMATION

Question No. GSEC 1-23:

Would NRIS service mitigate the congestion risk to other Texas rate payers that will result from the Selected Wind Facilities? Please provide all documents relied upon in providing this answer.

Response No. GSEC 1-23:

See the Company's response to GSEC 1-21.

Prepared By: James W. Jacoby	Title: RTO Regulatory SPP Mgr
Prepared By: Charles R. Ross	Title: Mng Dir RTO Policy & FERC Rec
Prepared by: Akarsh Sheilendranath	Title: Senior Associate, The Brattle Group
Sponsored by: Johannes P. Pfeifenberger	Title: Principal, The Brattle Group

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SOUTHWESTERN ELECTRIC POWER COMPANY'S RESPONSE TO GOLDEN SPREAD ELECTRIC COOPERATIVE INC.'S FIRST REQUEST FOR INFORMATION

Question No. GSEC 1-24:

Please refer to page 35 of the direct testimony of Johannes P. Pfeifenberger. Admit or Deny that NRIS service for the Selected Wind Facilities could mitigate the cost that other Texas transmission rate payers would be allocated as opposed to the implementation of the referenced SPP transmission upgrades built through the ITP process to alleviate congestion. Please explain your answer and provide all supporting documents.

Response No. GSEC 1-24:

See the Company's response to GSEC 1-21.

Prepared By: James W. Jacoby	Title: RTO Regulatory SPP Mgr
Prepared By: Charles R. Ross	Title: Mng Dir RTO Policy & FERC Rec
Prepared by: Akarsh Sheilendranath	Title: Senior Associate, The Brattle Group
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SOUTHWESTERN ELECTRIC POWER COMPANY'S RESPONSE TO GOLDEN SPREAD ELECTRIC COOPERATIVE INC.'S FIRST REQUEST FOR INFORMATION

Question No. GSEC 1-25:

For each of SWEPCO's current wind resources referred on page 19 of the direct testimony of John F. Torpey, please provide, by resource, the annual number of negative prices hours for the last 10 years.

Response No. GSEC 1-25:

The requested information, from 2013 forward, is publicly available through SPP's website.

Prepared By: Paul N. Demmy	Title: Resource Planning Anlyst Sr
Prepared By: Jon R. Maclean	Title: Resource Planning Mgr
Sponsored By: John F. Torpey	Title: Mng Dir Res Plnning&Op Anlysis

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SOUTHWESTERN ELECTRIC POWER COMPANY'S RESPONSE TO GOLDEN SPREAD ELECTRIC COOPERATIVE INC.'S FIRST REQUEST FOR INFORMATION

Question No. GSEC 1-26:

For each of SWEPCO's current wind resources referred to on page 19 of the direct testimony of John F. Torpey, please provide, by resource, the annual number of negative prices hours predicted, by each model and case, for each year that correspond to the estimated life of the Selected Wind Facilities.

Response No. GSEC 1-26:

Of the three simulation models employed, only PROMOD simulations generate nodal prices at each of SWEPCO's existing wind resource locations. The company performed PROMOD simulations for only 2024 and 2029, for the following Customer Benefits analysis cases:

1. Base Case
2. No-SPP-Upgrades case

The annual number of projected negative price hours at SWEPCO's existing wind generation locations based on these PROMOD simulations are provided in Attachment GSEC 1-26 Attachment 1.

Prepared By: Jon R. Maclean — Title: Resource Planning Mgr
Prepared By: James F. Martin — Title: Regulatory Case Mgr

Sponsored By: John F. Torpey — Title: Mng Dir Res Plnning&Op Anlysis

Number of Hours with Negative LMPs in Company's PROMOD Simulations (2024 & 2029)

			2029	
SWEPCO's Existing Wind Facility	Base Case	No SPP Upgrades	Base Case	No SPP Upgrades
Canadian Hills	441	179	304	12
Flat Ridge	795	1,234	139	716
High Majestic	46	148	0	2

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SOUTHWESTERN ELECTRIC POWER COMPANY'S RESPONSE TO GOLDEN SPREAD ELECTRIC COOPERATIVE INC.'S FIRST REQUEST FOR INFORMATION

Question No. GSEC 1-27:

Admit or Deny. The Selected Wind Facilities will increase congestion on the SPP transmission system. Please provide all documents relied upon in reaching your answer.

Response No. GSEC 1-27:

Cannot admit or deny. This depends on various factors that are uncertain at this time. Please see the related discussion presented by witness Pfeifenberger on pages 9-11 of his direct testimony. As he explains, wind delivery congestion cost in SPP varies greatly across location and with time, and it is difficult to forecast how it may change with time. Uncertainties with future generation development, future transmission upgrades, and generation retirements, all impact congestion in SPP, including that of the selected facilities, and in uncertain ways. All else equal, integrating additional resources without corresponding transmission system upgrades, such as those developed through ITP studies, will tend to increase existing system utilization and thereby could contribute to greater system congestion. On the other hand, transmission upgrades will mitigate congestion. Further, wind-related congestion tends to be more pronounced in areas with weak transmission outlets such as in the panhandle region of western Oklahoma, compared to central Oklahoma with much stronger transmission, where the selected facilities are proposing to interconnect. In addition, the Company's acquisition of the Selected Wind Facilities is not anticipated to have any material impact on congestion because these (and similar other) SPP wind facilities are in advanced development and will likely get completed with or without the Company's acquisition of the facilities.

Prepared by: Akarsh Sheilendranath — Title: Senior Associate, The Brattle Group

Sponsored by: Johannes P. Pfeifenberger — Title: Principal, The Brattle Group

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SOUTHWESTERN ELECTRIC POWER COMPANY'S RESPONSE TO GOLDEN SPREAD ELECTRIC COOPERATIVE INC.'S FIRST REQUEST FOR INFORMATION

Question No. GSEC 1-28:

Please refer to page 35 of the direct testimony of Johannes P. Pfeifenberger. If congestion increases and SPP transmission upgrades are implemented, please describe who will be allocated the cost of the transmission upgrades. Specifically, will other Texas transmission rate payers, other than SWEPCO, pay for the transmission upgrades?

Response No. GSEC 1-28:

SWEPCO has not performed an analysis of the cost impacts of hypothetical transmission upgrades. The cost allocation of SPP approved transmission upgrades is defined by Attachment J of the SPP OATT.

SPP transmission upgrades developed through SPP's ITP process (if any) are developed to address a wide range of transmission system needs, including reliability needs, economic needs and/or public policy needs. These projects are seldom developed to only alleviate congestion associated with any specific set of generation resources, such as the three selected wind facilities. Transmission upgrades that meet these needs must demonstrate a minimum acceptable benefit-to-cost ratio before they are approved for development. Unless congestion increases significantly—which would be driven by significant increases in future wind development in SPP, and not necessarily by the addition of just the three selected facilities—congestion mitigating transmission solutions may not easily meet required benefit-to-cost ratios in order to be approved for development. When new projects are approved based on benefit-to-cost ratio criteria, SPP will determine whether those projects provide region-wide benefit or localized benefits and will apply its tariff-based cost allocation methodology accordingly. Texas transmission customers of SPP will be allocated costs of transmission projects according to the SPP's cost allocation methodology. Rate payers in SPP's AEP West transmission zone and elsewhere will also be allocated costs of SPP's ITP process consistent with SPP's cost allocation methodology. Once costs are allocated, SPP will additionally ensure through its Regional Cost Allocation Review (RCAR) process that benefits associated with its transmission investments are roughly commensurate to allocated costs.

Prepared by: Akarsh Sheilendranath — Title: Senior Associate, The Brattle Group

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SOUTHWESTERN ELECTRIC POWER COMPANY'S RESPONSE TO GOLDEN SPREAD ELECTRIC COOPERATIVE INC.'S FIRST REQUEST FOR INFORMATION

Question No. GSEC 1-29:

Please refer to page 34 of the direct testimony of Johannes P. Pfeifenberger. How much of the $1.6 billion of transmission upgrades in 2019 through 2024 were paid for by Texas rate payers? How much of this cost was paid for by SWEPCO?

Response No. GSEC 1-29:

SWEPCO has not performed the requested analysis. Allocation of transmission upgrades will be made in accordance with the SPP OATT.

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SOUTHWESTERN ELECTRIC POWER COMPANY'S RESPONSE TO GOLDEN SPREAD ELECTRIC COOPERATIVE INC.'S FIRST REQUEST FOR INFORMATION

Question No. GSEC 1-30:

How does the addition of wind resources in the SPP ITP models affect the Average Production Cost ("APC") benefit metric utilized in the SPP ITP process?

a. How does SPP determine if a wind generation facility should be assigned ownership?

b. Does an additional wind generation facility that is assigned ownership:
   i. Increase production costs?
   ii. Decrease purchase costs?
   iii. Increase sales revenues?
   iv. Increase or decrease the APC benefit associated with additional transmission?

c. Does an additional wind generation facility that is not assigned ownership:
   i. Increase production costs?
   ii. Decrease purchase costs?
   iii. Increase sales revenues?
   iv. Increase or decrease the APC benefit associated with additional transmission?

d. Will the sales from a wind generation facility that is assigned ownership, relative to not assigning wind ownership:
   i. Increase production costs?
   ii. Decrease purchase costs?
   iii. Increase sales revenues?
   iv. Increase or decrease the APC benefit associated with additional transmission?
   v. Show more or less benefit from the addition of transmission projects than a facility with assigned ownership?

e. Will the Selected Wind Facilities be assigned ownership by SPP? Please provide all supporting evidence.

Response No. GSEC 1-30:

The impact on SPP's APC metric of including more wind in SPP's ITP models will depend on many factors, such as the location and characteristics of the wind resources, their ownership, the extent to which other generation resources are added or retired, how the transmission system is expanded, load growth, fuel prices, etc.

a. In SPP's 2019 ITP assessments, SPP assigned ownership to utility-owned or contracted wind generation.

b-d. For SPP's APC methodology, including impacts of SPP's wind ownership assignments on SPP zones' production costs, sales revenues and APC benefits, please see SPP's January 11, 2018 ESWG presentation, titled "Renewable Resource

Expansion Plan Mitigation, and the accompanying APC Impact example spreadsheet. These material can be accessed on SPP's website via the following link:

https://www.spp.org/Documents/56280/ESWG%20Agenda%20&%20Background%20Materials%2020180111.zip

Note that SPP's APC metric does not provide a measure of benefits for SWEPCO and PSO customers. Therefore, SPP's APC analysis was not utilized in the company's analysis for the Selected Wind Facilities. The analysis of SWEPCO and PSO customer benefits had to be undertaken by the Company in PLEXOS for the reasons explained in the various company witness testimonies.

e. If the company purchases the Selected Wind Facilities as proposed, SPP will assign the ownership of these facilities to the AEP West area, which includes SWEPCO, PSO, and several cooperatives and municipalities.

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Prepared by: Akarsh Sheilendranath	Title: Senior Associate, The Brattle Group
Sponsored By: Kamran Ali	Title: Mng Dir Trans Planning
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SOUTHWESTERN ELECTRIC POWER COMPANY'S RESPONSE TO GOLDEN SPREAD ELECTRIC COOPERATIVE INC.'S FIRST REQUEST FOR INFORMATION

Question No. GSEC 1-31:

How much wind was assigned ownership in the ITP 2019 model Future 1? Future 2?

Response No. GSEC 1-31:

The information responsive to this request is HIGHLY SENSITIVE under the terms of the Protective Order. The Highly Sensitive information is available for review at the Austin offices of American Electric Power Company (AEP), 400 West 15th Street, Suite 1520, Austin, Texas, 78701, (512) 481-4562, during normal business hours.

See GSEC 1-31 Highly Sensitive Attachment 1.

Prepared by: Johannes P. Pfeifenberger	Title: Principal, The Brattle Group
Prepared by: Akarsh Sheilendranath	Title: Senior Associate, The Brattle Group
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SOUTHWESTERN ELECTRIC POWER COMPANY'S RESPONSE TO GOLDEN SPREAD ELECTRIC COOPERATIVE INC.'S FIRST REQUEST FOR INFORMATION

Question No. GSEC 1-32:

Were the Selected Wind Facilities assigned ownership in the ITP 2019 model Future 1? Future 2?

Response No. GSEC 1-32:

In SPP's 2019 ITP PROMOD Reference Case model, only two of the three selected wind facilities (Sundance and Maverick) were included by SPP. These two units were assigned by SPP to an SPP-defined zone that included only merchant generation. Therefore, they were not assigned ownership to any SPP-transmission member area. However, in the Company's customer benefits analysis, these two units, along with Traverse, were modeled within PROMOD AEP West area with AEP West ownership.

Prepared by: Johannes P. Pfeifenberger Title: Principal, The Brattle Group Title:
Prepared by: Akarsh Sheilendranath Senior Associate, The Brattle Group

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SOUTHWESTERN ELECTRIC POWER COMPANY'S RESPONSE TO GOLDEN SPREAD ELECTRIC COOPERATIVE INC.'S FIRST REQUEST FOR INFORMATION

Question No. GSEC 1-33:

How much of the wind does AEP expect to be assigned ownership in the ITP model for 2024, 2025, 2026, 2029, 2030, and 2031?

a. Admit or Deny. A portion of the wind that will be added in 2024, 2025, 2026, 2029, 2030, and 2031 will not be assigned ownership in the ITP model.

b. Admit or Deny. It is possible that all or a majority of the wind that will be added in 2024, 2025, 2026, 2029, 2030, and 2031 will not be assigned ownership in the ITP model.

Response No. GSEC 1-33:

The ITP models are developed by SPP based on input assumptions developed and approved by its stakeholders. The renewable ownership assumption for SPP's 2019 ITP Study is documented in Section 2.2.2.1 of the 2019 ITP Assessment Report and can be accessed from the following link -> https://www.spp.org/Documents/60730/2019%20ITP%20Report_v0.5.zip. The renewable ownership assumption for SPP's 2020 ITP Study is included in the study scope document and is available at the following web address -> https://www.spp.org/Documents/59384/2020%20ITP%20scope_MOPC%20Approved.docx. The Company modified the ownership of the Selected Wind Facilities to the AEP pricing zone in the ITP models for its analysis.

a. Please see the explanation provided above.

b. Please see the explanation provided above.

Prepared By: Anita A. Sharma Title: Engineer Staff

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SOUTHWESTERN ELECTRIC POWER COMPANY'S RESPONSE TO GOLDEN SPREAD ELECTRIC COOPERATIVE INC.'S FIRST REQUEST FOR INFORMATION

Question No. GSEC 1-34:

How much wind capacity, by year, was assumed by the Aurora and Plexos models?

Response No. GSEC 1-34:

AURORA models for 2024 and 2029 assumed total SPP wind capacity of 24,594 MW. The Company's PLEXOS modeling for assessing customer benefits of purchasing the selected wind facilities only includes SWEPCO-owned and SWEPCO-contracted generation. The PLEXOS model is set up for assessing cost of service at the operating company level. It is not set up to model the entire SPP region.

Prepared by: Johannes P. Pfeifenberger	Title: Principal, The Brattle Group
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SOUTHWESTERN ELECTRIC POWER COMPANY'S RESPONSE TO GOLDEN SPREAD ELECTRIC COOPERATIVE INC.'S FIRST REQUEST FOR INFORMATION

Question No. GSEC 1-35:

If a gen-tie or set of gen-ties are built to alleviate the congestion from the Selected Wind Facilities to SWEPCO load, who will pay for the cost of gen-tie(s)?

Response No. GSEC 1-35:

The cost of any dedicated gen-tie is the responsibility of the owner of the generation facility.

Prepared By: Christopher N. Martel	Title: Regulatory Consultant Sr
Prepared By: Jonathan M. Griffin	Title: Regulatory Consultant Staff
Prepared By: Lynn M. Ferry-Nelson	Title: Dir Regulatory Svcs
Sponsored By: Thomas P. Brice	Title: VP Regulatory & Finance

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SOUTHWESTERN ELECTRIC POWER COMPANY'S RESPONSE TO GOLDEN SPREAD ELECTRIC COOPERATIVE INC.'S FIRST REQUEST FOR INFORMATION

Question No. GSEC 1-36:

Referring to SWEPCO's Response No. TIEC 2-19, how does a Market Participant obtain Auction Revenue Rights ("ARRs")? Is firm transmission a prerequisite for obtaining ARRs?

Response No. GSEC 1-36:

Transmission Service Customers are provided a Candidate Auction Revenue Right from the source to the sink path for which they have Firm Transmission Service. They can nominate these Candidate ARR paths in an attempt to secure Auction Revenue Rights along those paths. Additionally, a Transmission Service Customer may nominate other paths without having Firm Transmission Service along the path.

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SOUTHWESTERN ELECTRIC POWER COMPANY'S RESPONSE TO GOLDEN SPREAD ELECTRIC COOPERATIVE INC.'S FIRST REQUEST FOR INFORMATION

Question No. GSEC 1-37:

Admit or Deny. All else equal, additional wind in SPP will increase ancillary service costs.

Response No. GSEC 1-37:

The Company used the SPP developed 2019 ITP model for its analysis which includes the operating reserve capacity and spinning reserve capacity requirement according to SPP criteria in its model. These assumptions were not modified with projected wind added to the models.

Introduction of the additional wind resources could cause the cost of ancillary services to actually decrease. First, all else equal, the volumes of ancillary services procured by SPP would remain unchanged, and, therefore, the cost of ancillary service would not change. Second, it is possible that the additional wind farms will be in locations so that the locational diversity will reduce the uncertainty in production of wind generation in the region. Finally, if resources are offered to provide ancillary services at a lower cost than other resources, it could potentially decrease ancillary service costs. The Company denies that additional wind in SPP will necessarily increase ancillary service costs.

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SOUTHWESTERN ELECTRIC POWER COMPANY'S RESPONSE TO GOLDEN SPREAD ELECTRIC COOPERATIVE INC.'S FIRST REQUEST FOR INFORMATION

Question No. GSEC 1-38:

How are ancillary service costs paid for in SPP?

Response No. GSEC 1-38:

Ancillary service obligations are assigned to market participants on the basis of load.

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SOUTHWESTERN ELECTRIC POWER COMPANY'S RESPONSE TO GOLDEN SPREAD ELECTRIC COOPERATIVE INC.'S FIRST REQUEST FOR INFORMATION

Question No. GSEC 1-39:

How much will the Selected Wind Facilities increase ancillary service costs in SPP?

Response No. GSEC 1-39:

See response to GSEC 1-37.

Prepared By: Anita A. Sharma Title: Engineer Staff

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SOUTHWESTERN ELECTRIC POWER COMPANY'S RESPONSE TO GOLDEN SPREAD ELECTRIC COOPERATIVE INC.'S FIRST REQUEST FOR INFORMATION

Question No. GSEC 1-40:

How much would the addition of a typical 1,000 MW wind generation project in SPP increase ancillary service costs in SPP?

Response No. GSEC 1-40:

The definition of a "typical 1,000 MW wind generation project" is unclear. The impact on ancillary service costs will depend on a variety of factors, as discussed in the responses to GSEC 1-37.

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SOUTHWESTERN ELECTRIC POWER COMPANY'S RESPONSE TO GOLDEN SPREAD ELECTRIC COOPERATIVE INC.'S FIRST REQUEST FOR INFORMATION

Question No. GSEC 1-41:

Please provide all studies or work product in your possession that discusses the relationship between wind and ancillary service costs in SPP.

Response No. GSEC 1-41:

The Company has no such documents. See response to 1-37.

Prepared By: Anita A. Sharma Title: Engineer Staff

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SOUTHWESTERN ELECTRIC POWER COMPANY'S RESPONSE TO GOLDEN SPREAD ELECTRIC COOPERATIVE INC.'S FIRST REQUEST FOR INFORMATION

Question No. GSEC 1-42:

Admit or Deny. A significant factor in the need for a ramping energy or ancillary service product in SPP is the increasing amount of wind generation in SPP. If Deny, please describe the reasons for the need of a ramping product in SPP.

Response No. GSEC 1-42:

The uncertainty associated with wind production was one factor that led to SPP pursuing the development of a ramping product.

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SOUTHWESTERN ELECTRIC POWER COMPANY'S RESPONSE TO GOLDEN SPREAD ELECTRIC COOPERATIVE INC.'S FIRST REQUEST FOR INFORMATION

Question No. GSEC 1-43:

Please refer to page 9 of the direct testimony of Johannes P. Pfeifenberger, "there is a possibility that more wind generation could be built in the SPP footprint than projected due to the potential for future carbon charges or other environmental regulations of fossil resources, customers' shifting preferences for clean energy resources, continued declines in renewable generation costs, future increases in natural gas prices, and the retirement of older and inefficient generators."

a. How much wind generation is possible?

c. Did AEP consider a high wind scenario? Why or why not?

d. Would more wind generation increase or decrease congestion?

e. Would more wind in SPP increase or decrease the economic benefits of the Selected Wind Facilities? Please explain how.

f. Would more wind in SPP increase or decrease the amount of capacity benefit expected by the Selected Wind Facilities? Please explain.

Response No. GSEC 1-43:

a. Witness Pfeifenberger has not conducted this assessment. SPP's current projections for future wind development by 2026 and 2030 are provided in GSEC 1-4 and GSEC 1-5. It ranges from 29 GW to 41.5 GW, depending on the assumed future.

b. No. However, the Company considered the possibility of a high congestion future, which could be triggered by high wind generation additions, in its congestion risk and risk mitigation analysis.

c. Please see the discussion in section IV: "Congestion in SPP", on page 8 of witness Pfeifenberger's testimony.

d. Mr. Pfeifenberger has not analyzed this question. However, the Company's ability to mitigate congestion risk will preserve the economic benefits of the Selected Wind Facilities even in high congestion futures as shown in Mr. Torpey's analyses.

e. Mr. Pfeifenberger has not analyzed this question, but notes that the capacity value of wind resources could increase or decrease in the future relative to the capacity credit SPP's currently provides for wind resources. Regardless of what happens with the capacity credit in SPP, as shown on page 1 of Company witness Torpey's Errata Exhibit

JFT-3, the base case $70 million of capacity value is a small component of the project's benefits, and that benefit doesn't begin until 2037. Even with no capacity value, which is unlikely, the NPV of benefits to customers would be a robust ~$500 million. The energy value, by comparison, is $1.66 billion.

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SOUTHWESTERN ELECTRIC POWER COMPANY'S RESPONSE TO GOLDEN SPREAD ELECTRIC COOPERATIVE INC.'S FIRST REQUEST FOR INFORMATION

Question No. GSEC 1-44:

Please refer to SWEPCO's Response No. TIEC 2-17, "the addition of the new wind resources is not expected to have a significant impact on SPP market energy prices, under the assumption that the additional wind facilities will be built in SPP regardless of SWEPCO ownership."

a. Please provide any documentation SWEPCO relied on when making this claim.

b. If the additional wind facilities are built and not owned by AEP, who will own these wind facilities?

Response No. GSEC 1-44:

a. See the Company's response to TIEC 5-9. The Company received multiple bids in response to its RFP's which allowed us to make the determination that these and other facilities are in advanced stages of development, based on the information gathered during that process. Also see the testimony of Company witness Godfrey.

b. AEP does not have information that would be responsive to this request.

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Sponsored By: John F. Torpey	Title: Mng Dir Res Plnning&Op Anlysis
Sponsored by: Johannes P. Pfeifenberger	Title: Principal, The Brattle Group